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BRUSSELS NORTH

# BRUSSELS NORTH NEW CENTRALITY

KU LEUVEN | MaHS-MaUSP-EMU 2013-2014

URBANISM STUDIO Fall 2013

Program Director: Bruno De Meulder | Studio Instructors: Erik Van Daele, Ivan Llach

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\*The studio is realized in partnership with R.W.O. (the Flemish agency for space, housing and non-moveable heritage). In this way the studio dialogues with policy makers, stake holders, administration, the academic and the professional world.

Evidently the studio will be a testing ground for innovative concepts and theories of urbanism and urban development.

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# BRUSSELS NORTH AS AREA OF NEW CENTRALITY

Flanders is a dispersed and diluted metropolitan system. A constellation of small centers that profit from each other's nearness. In this studio we explore the possibility to insert new centralities or to strengthen existing ones in order to value Flanders as a metropolitan system based on small-scale, local qualities. With this research by design we participate in recent discussions among theorists, urbanists, planners and administrations. All of them reflect on the possibilities and characteristics that offer this atypical metropolitan system. At the same time they try to envisage how this interpretation of Flanders as a dispersed metropolitan system may address aspects like energy, infrastructure, ecology, inclusion...

This atypical metropolis manifests itself most evidently in the zone between Antwerp and Brussels. Our focus is on the Brussels periphery, in particular on the zone between Asse and Leuven, an area that is highly dynamic, offering the possibility to host programs that are attracted to the Brussels Region but don't easily fit the consolidated morphology of the Brussels Region. Within this area we look at Vilvoorde, Machelen, Zaventem, Diegem and the North of the Brussels Region in particular.

Vilvoorde is a city very near to Brussels and along the canal Brussels-Willebroeck (that connects the Brussels harbor to the sea). Vilvoorde developed in the XXth century to an important industrial center. Its strategic position in the infrastructural network, the closeness to the national airport Zaventem and at the crossing of a canal, gave its logistical services competitive advantages. All this seems however to belong to the past. The environment of 'Brussels North' is nowadays rather characterized by a massive amount of voids, brownfields and derelict infrastructures from the port and railways on the one hand, and huge interest of the new service economies, housing and commerce on the other hand. These massive voids offer the opportunity to answer a demographic and programmatic pressure from the Brussels region. About 80.000 extra inhabitants and different large scale programs, both commercial, recreational, agricultural or business will have to be located in and around Brussels in the next decades. The studio challenge is to think how we can spatially organize these claims and generate synergies. Will we introduce new centralities?

Can the larger region become one new urban system? What is the implication for the fragile open space structure? What can be the backbones of this new urbanization? What is the role of public transport, of ecology, agriculture etc.?

The urbanism studio proposes the development of an innovative and multiscale spatial strategy that goes beyond the conventional urban renewal practices concerning voids and consequently investigates the potential system value and constellational capacity of the multitude and variety of the mentioned voids. It anticipates the emerging of a variety of innovative interpretations of new centralities in the form of new types of housing, work, recreation, ecology etc.







# CROSSING CENTRALITIES

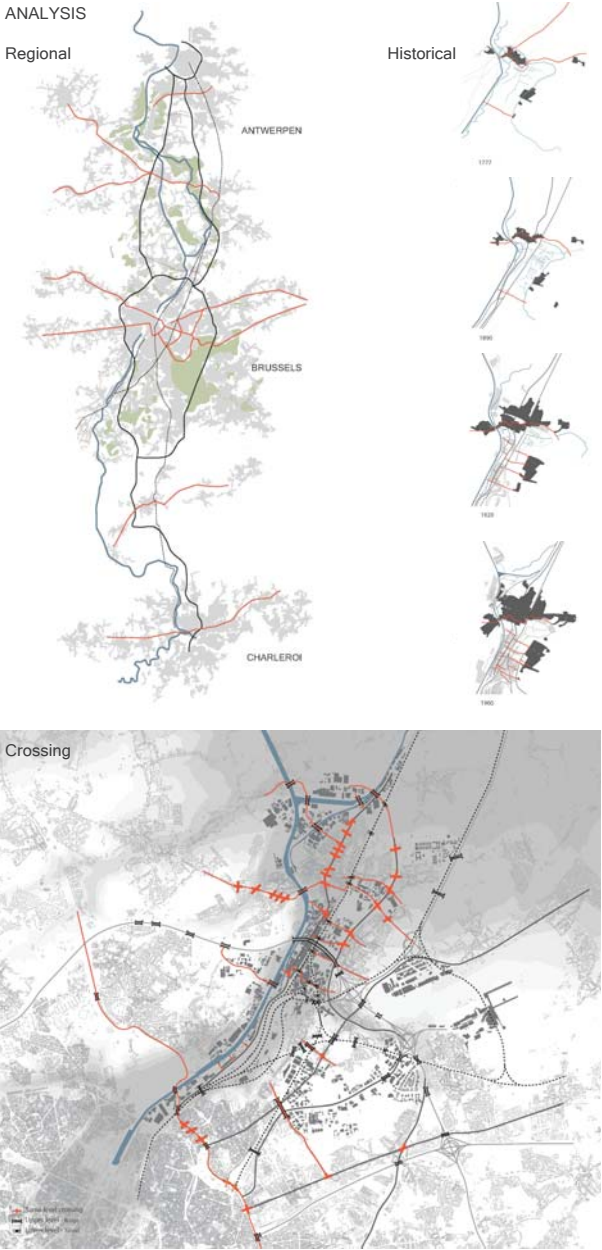
Alaleh Kouhkan, Carmen Briers

The project reinforces the east – west connections crossing the prevalent north – south connections around Brussels thus creating a network of strategic locations and programs on and international, national, regional and local level.

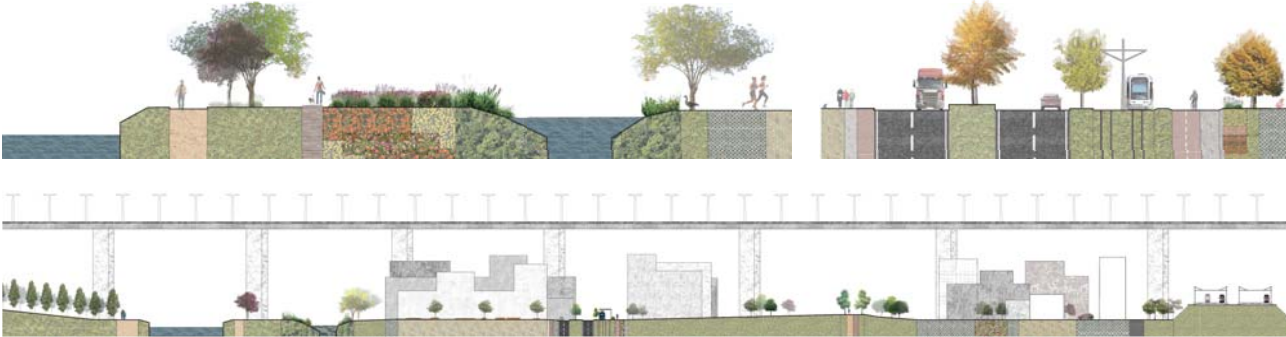
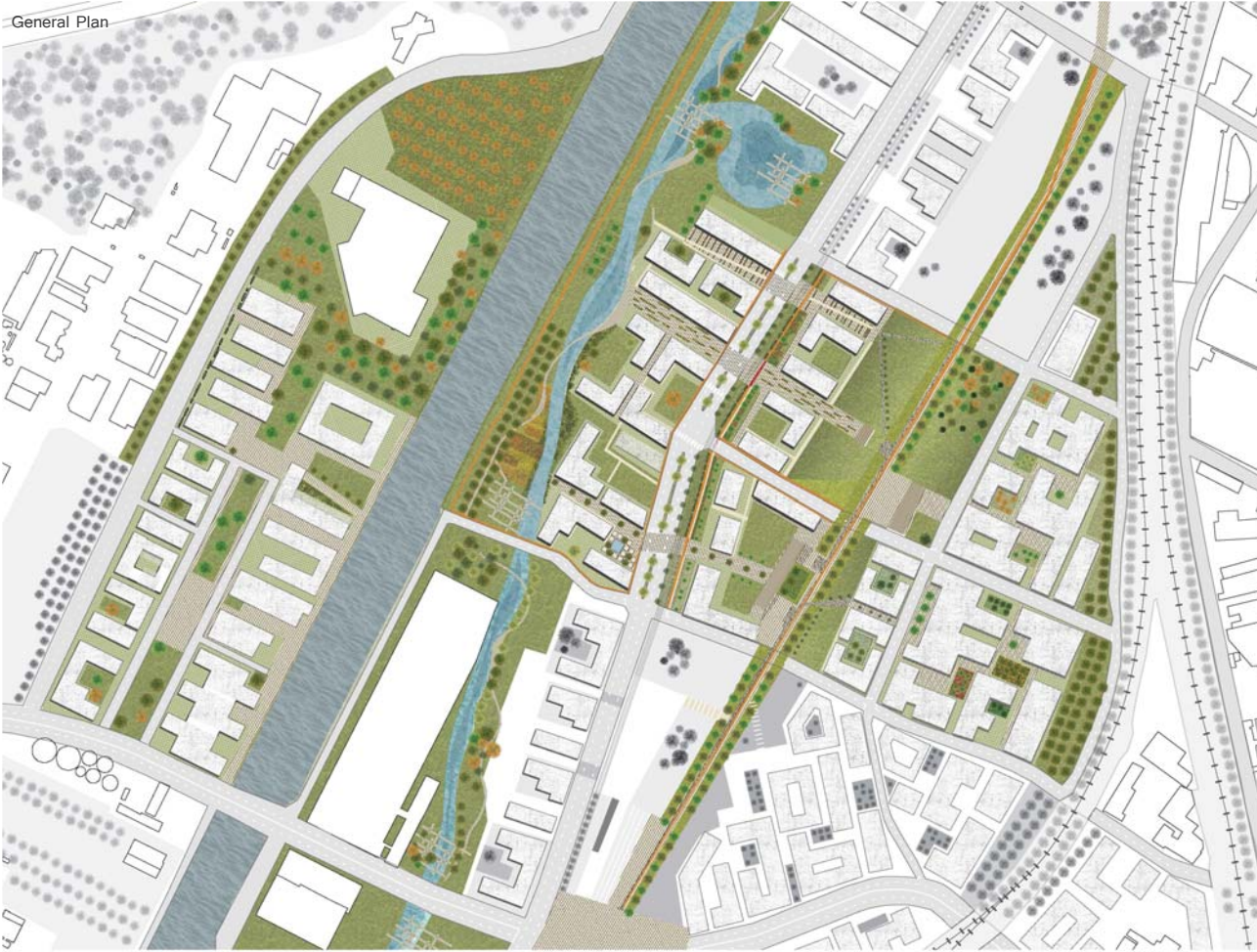
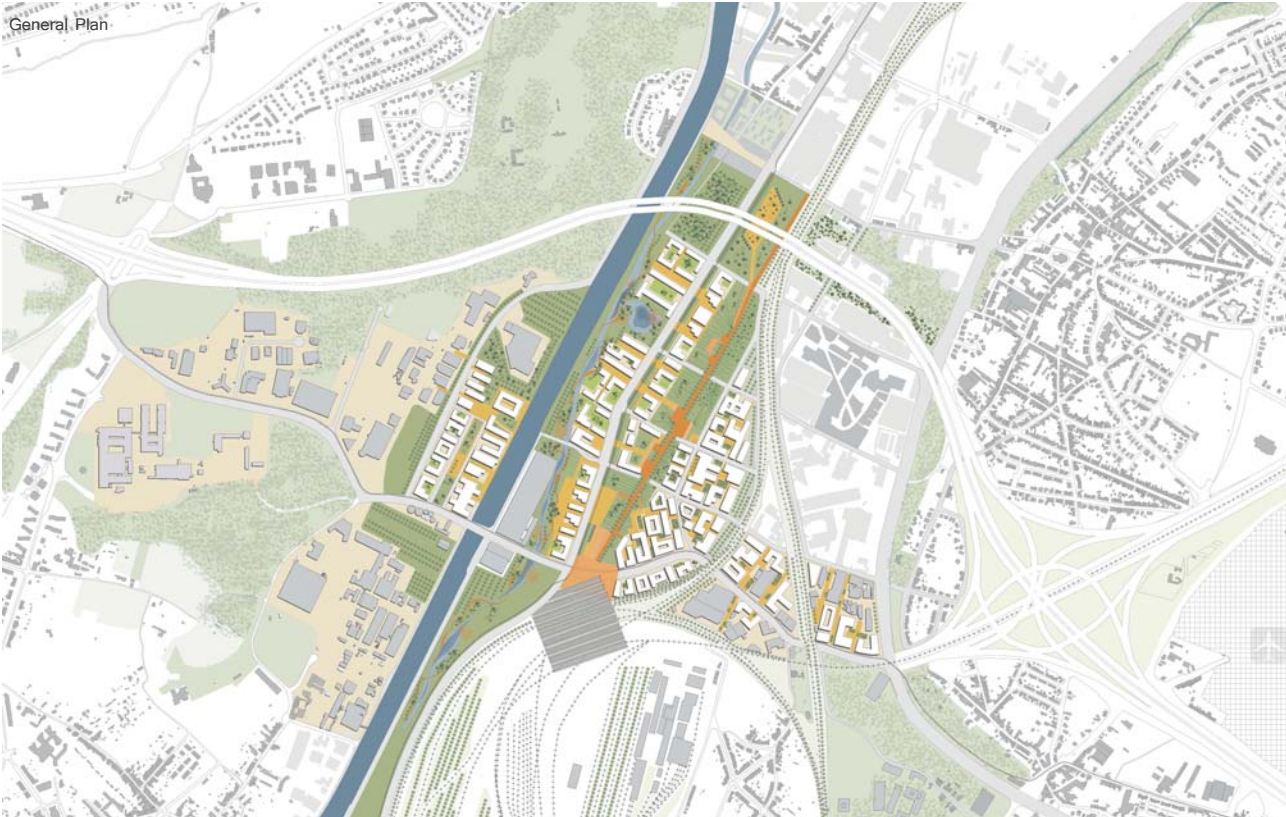
The centre of Belgium is characterized by a north-south bundle of infrastructures: railroad, canal, river, national roads and highway. This bundle links the urban regions of Antwerp, Brussels and Charleroi. It is strengthened by local east-west connections, creating strategic locations where centralities and new investments are positioned. To insert a new centrality in Brussels North, the focus should be on this network, especially on the east-west oriented crossings, and on detecting the strategic locations within this network. Therefore we focus on the east-west crossings of the bundle of infrastructure, spanning the Senne river valley, and on the pockets of space that link them together, along and in between the bundle of infrastructure. The strategic vacant spaces in Brussels north: leftover infrastructural and industrial spaces and vacant or soon-to-be vacant industries offer the opportunity to insert new programs and destinations thus optimizing the strategic importance of the network.

Although there are several east-west crossings, only one of them is eligible to become an important national and regional centrality. The other crossings will function on the local level of Brussels or Vilvoorde and will have a supportive function of existing centralities. The site for a potential new international and national centrality is on the border between the two municipalities. At present it's a no-man's land surrounding the highway flyover but it has an enormous potential: a planned station for high-speed trains and the proximity of the national airport Zaventem. Besides these elements of international importance, a military hospital, a chemical research campus, a business park and a science park are present. So the amenities for an international metropolitan area already exist, but what lacks are the coherence of the area and an optimal functioning within the existing infrastructure network.

We insert an infrastructural loop, connected to the existing highway system and linking all the present and planned amenities thus turning this chaotic no-man land into a centrality offering a variety of functions, bound together by a north-south public landscape element. This landscape figure is the spatial framework of the new neighbourhood. The open space figure is based on an abandoned railway track on a talus. The talus is remodelled crossing and interacting with all of the existing and new programs and neighbourhoods.









# URBAN PLATFORM

Anastasia Angelidou, Vidya Spaye

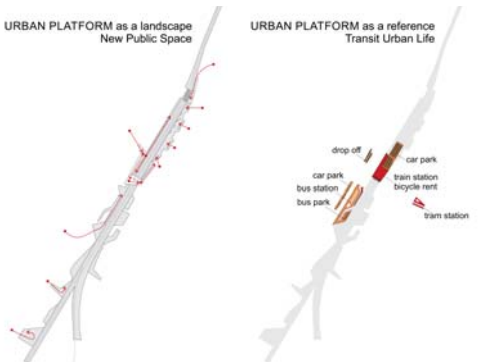
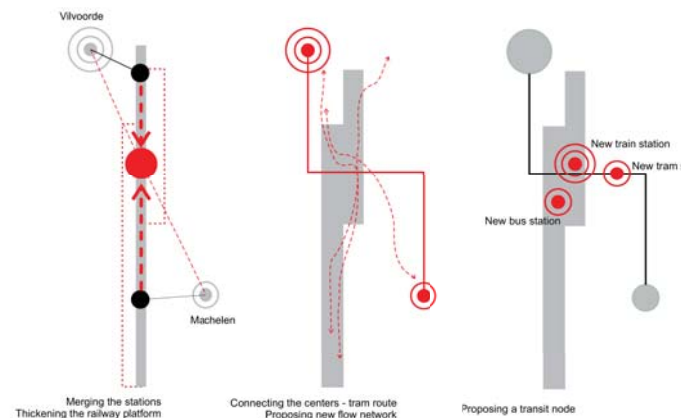
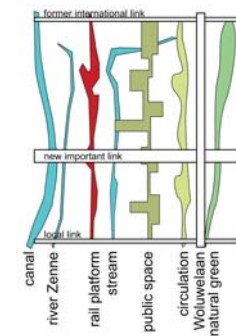
The project answers the question of a new centrality located in Brussels North, attracting the hypothetical number of 80000 people. It introduces a new node with spatial interdependency in the linear economic backbone of Belgium.

The objective of the project is to create a collective node in the North of Brussels, putting different environments in relation to one another by inserting a new train-bus station. The station plays the role of a generator in between two towns: Vilvoorde and Machelen. It generates new residential development in a derelict area that used to be an industrial, isolated area. The project introduces the term of transit-oriented development to answer the expected new wave of inhabitants in Brussels North.

This project is dealing with the role of infrastructures. The canal, the river Senne, the railway and the motorway used to be the main generators of the economy of Vilvoorde and the towns in the periphery. The infrastructure bundle relates Brussels North with the centre of Brussels as well as with the Zaventem airport. However, the industrial infrastructure attracted by the infrastructure bundle, is being abandoned, leaving a wasteland. The main industries such as the Renault factory created undefined, left over spaces that are now barriers for the future development. The project takes advantage of the infrastructural elements in the area, for example an existing railway platform, which is elevated on a mound, is transformed into an “Urban Platform”. The platform becomes “backbone” and spatial generator of the main towns of Brussels North, Vilvoorde and Machelen by merging the existing Vilvoorde train station and the future Machelen train station into one station in between both cities. The project introduces a new network of flows, open spaces and facilities that will structure the new density combining the regional ambitions with the local scale character of the area.

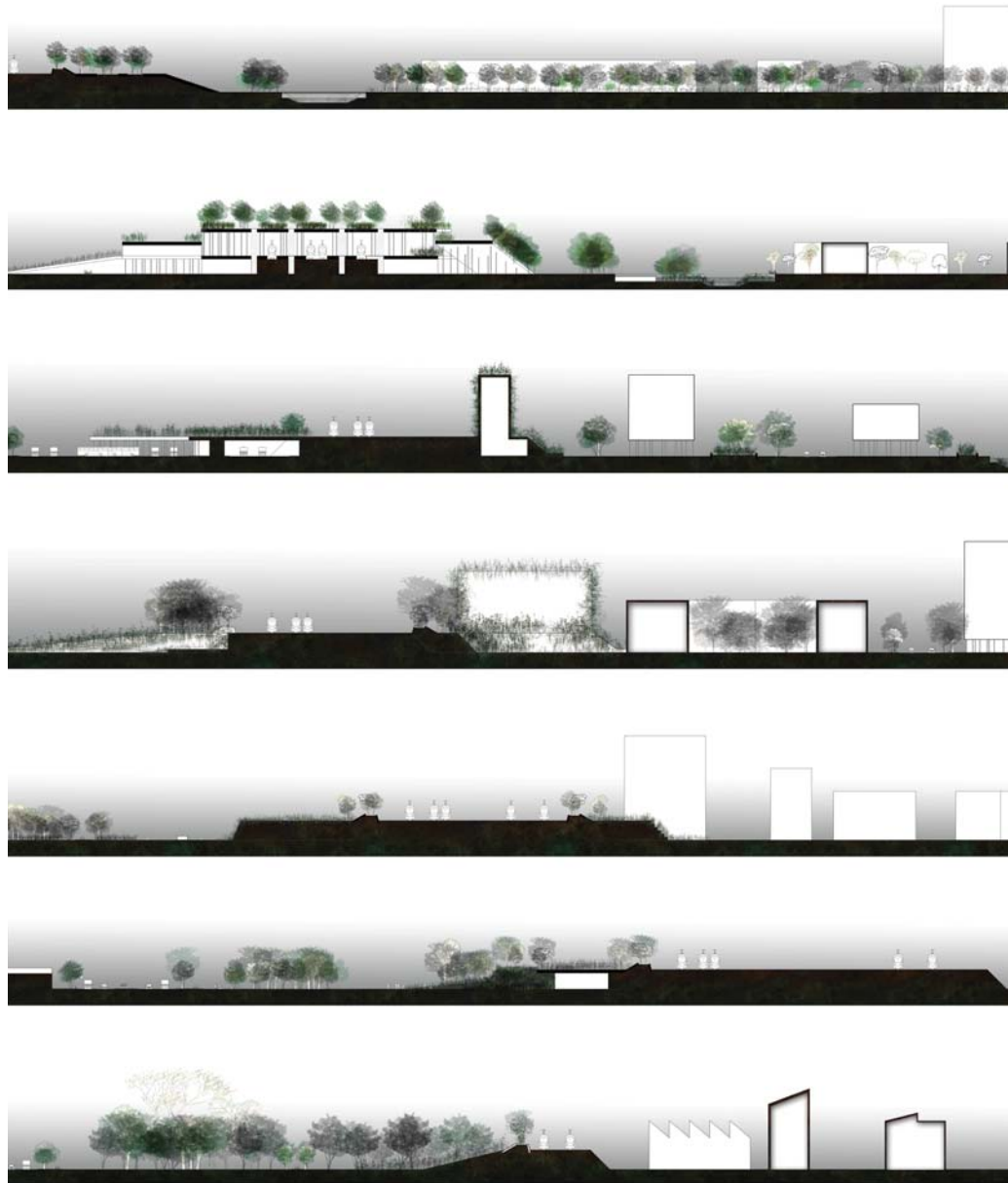
Orienting the role of this “backbone” as a green, linear public space, the existing infrastructure of the mounded platform is often cut off or extended to the level of the city, allowing to integrate this ex-buffer zone with its surroundings. At the same time, opening up a large tunnel, cutting through the mound, a new boulevard is created in the East-West direction, carrying the new tramline. New public facilities as well as public services such as the new hospital can now be attached to this new connector. The boulevard together with the urban platform aims to structure a new development focused on mobility as transit generator.

## STRATEGY





Sections



Platform Level



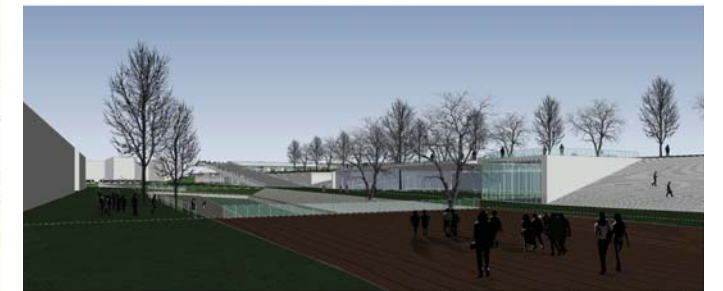
City Level



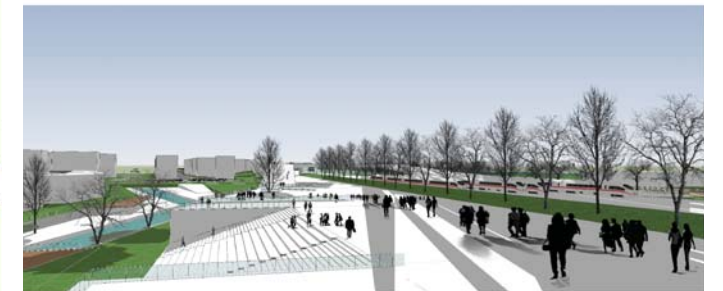
bird's eye view towards the station



perspective view towards the station



perspective view towards the urban platform



perspective from the urban platform

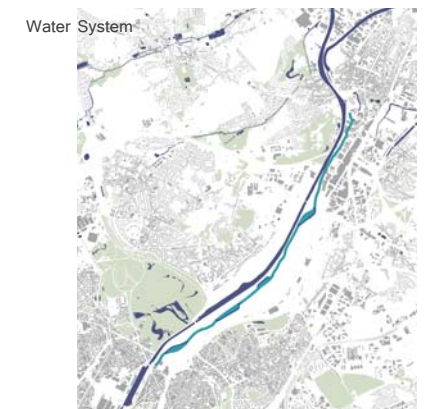
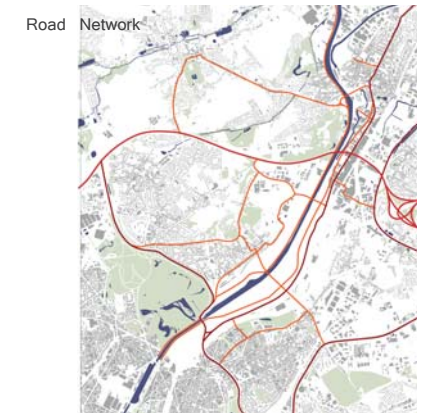
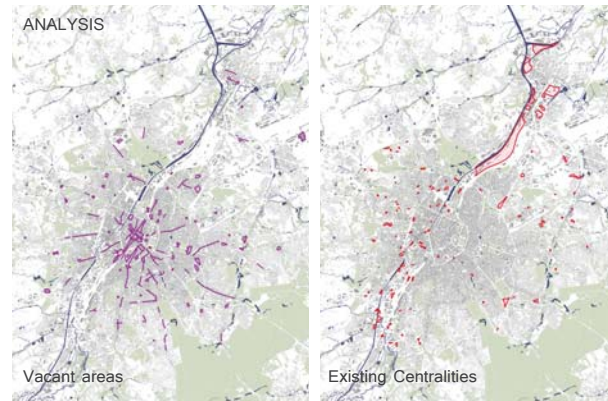


# LINEAR LANDSCAPE: ARTICULATING THE GREEN SYSTEMS

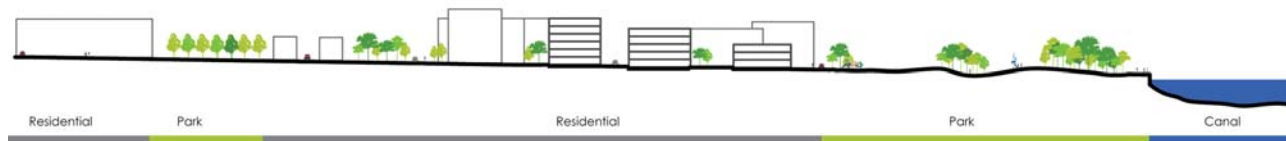
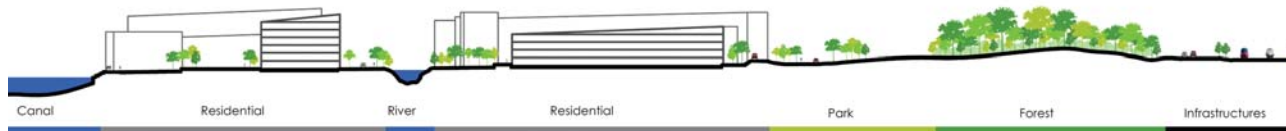
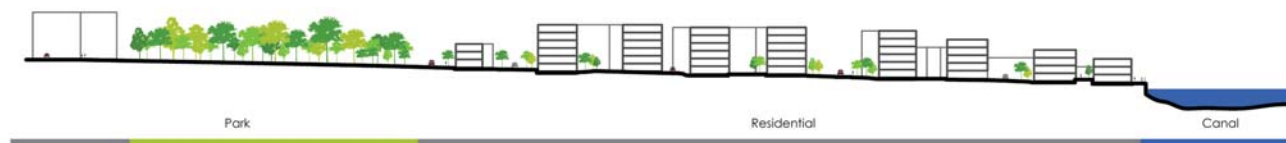
Hao Feng Wan, Fakaruddin Wan Ab Aziz

We introduce a new centrality by designing a new green framework. The green structure is based on an analysis of the regional open space structure of the Brussels region in order to understand the relation between the introduction of a new centrality and the existing centralities. The analysis reveals a landscape of scattered spaces that do not form a coherent structure. However the canal Brussels Antwerp has the potential to become a backbone assembling all these landscape fragments. Therefore we design the canal as a linear landscape based on its original morphology. Originally the canal was a green bundle that was demolished by the process of industrialisation. The reversed process of turning the industrial zones into residential areas and the integration of the canal in the urban tissue already takes form in Brussels. A similar transformation process can be introduced on a larger scale and with a stronger impact along the canal in Brussels North. By making this canal strip an open space with a high quality, it becomes a new centrality attracting local and national programs, housing, commerce, infrastructure, offices... The effect of such a high quality open space framework is shown in different projects of reference where the framework has a direct impact on the living quality of the neighbourhood.

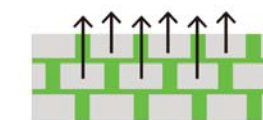
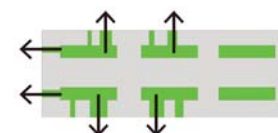
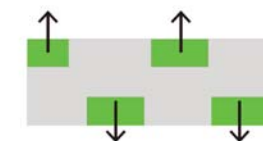
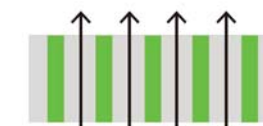
The urbanisation of the area between Brussels and Vilvoorde was stopped by the process of industrialisation, separating the urban fabrics of both cities. This separation can be rethought by the introduction of the open space figure thus introducing new relations between Vilvoorde and Brussels. A new centrality is introduced with various urban programs. The project for the new centrality is based on the advantages of the existing water systems and the infrastructure systems. Both systems are slightly altered in such a way that the vacant areas in Brussels North can be developed into new environments carrying new programs. Therefore the whole area along the canal is considered as a contemporary urban landscape.







Variations of Built spaces



General Plan





# INTERWEAVING LANDSCAPE AND CENTRALITIES

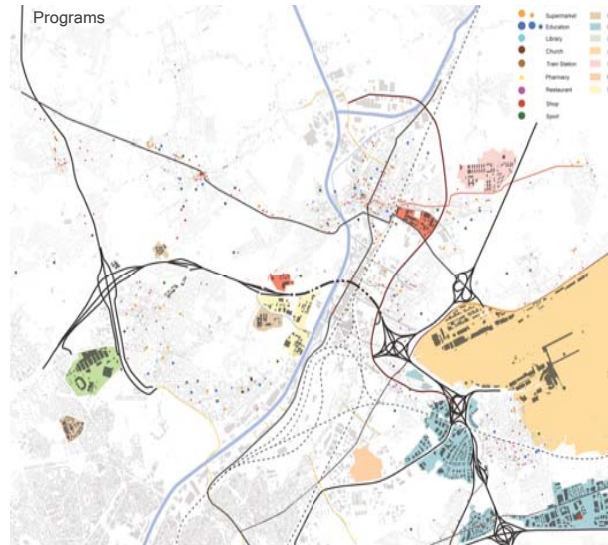
Yufei Zangh, Mario Auricchio

The municipalities composing Brussels North (Vilvoorde, Machelen, Grimbergen...) historically evolved into one polycentric cluster. An urban system that was complementary to Brussels that expanded more in a radio concentric way. The relation between Brussels North and Brussels is not spatial; it's limited to infrastructure: to the railway, the canal and the industrial area. With the construction of the Ring, new destinations were developed in between Brussels and Brussels North: regional and national destinations like hospitals, office areas ... alternating with open spaces, like agriculture fields, forests and parks. These new destinations in combination with programs along the Woluwe avenue, the expansion of Brussels to the north and the local connections within the polycentric cluster form a "T figure".

The main strategy of the project is to reuse some of the old industrial areas in Vilvoorde to reinforce this T Figure. On the regional scale this results in a complex figure where regional and national programs, related to the motorway are superimposed with new local east west connections in the polycentric constellation. The east-west direction is reinforced by secondary roads along the ring, a tramway line crossing the cities and a new bicycle connection. The north-south connection is reinforced by splitting the railway line, connecting this new destination in Vilvoorde to Brussels. The new regional and national destinations are surrounded with new residential areas structured by east-west green fingers. These east-west structures are reinforced by introducing local facilities, like a school, park, and urban gardens.

The structure of the new centrality is designed as a campus articulated by the east-west roads. The campus is a large forest where all the new buildings are surrounded by trees. The forest is crossed by a water structure of brooks and three lakes that brings the water from the Woluwe to the Senne. The forest is characterised by national and regional infrastructures: the fly-over, the tram, the railway, the canal... Inside the campus infrastructure is limited to the minimum. An east - west central path is the backbone of a network of pedestrian and bike paths. The clusters of building: the new Machelen station, reused industrial buildings, the new hospital, offices have a punctual access from the surrounding roads.

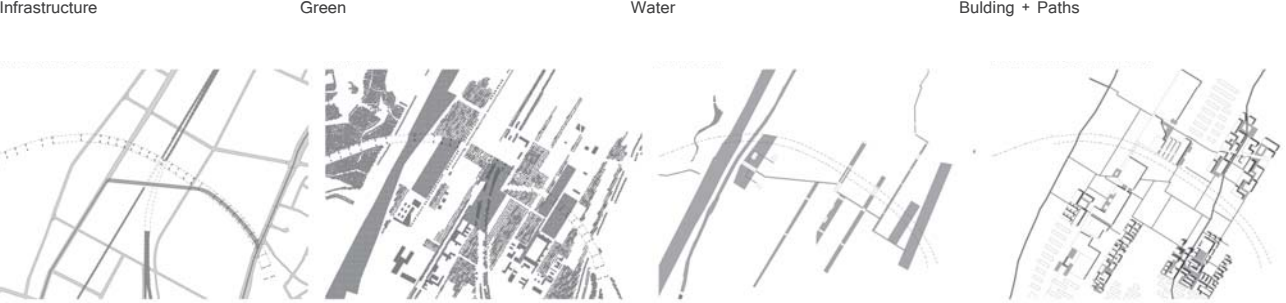
## ANALYSIS



## STRATEGY | Reinforcing the T-FIGURE









# RE-HABITATING THE VALLEY OF INFRASTRUCTURES

Thomas Lenaerts, Stefano Aresti, Aida Biscevic

The project is the design of a structuring framework of open space for Brussels (North). The project is based on the design of three linear elements related to the infrastructures in the Zenne valley: the canal, the railway and the Woluwe Avenue. These infrastructural figures each have a distinct ambition and spatial quality and join each other in Brussels North. The fact that these regional landscape and infrastructural figures are combined in Villoorde offers the opportunity to develop a new regional and national destination that is related to Brussels and is accessible for the larger Brussels region. Although combined these three figures keep their specific identity.

The Canal becomes a new front, providing an alternative for the lack of green space in the post-industrial zone. In this strip we focus on public space, soft mobility and residential projects, combined with (local) entrepreneurs. The polluted water of the largely covered Zenne gets treated through multiple series of constructed wetlands, which serve as public spaces for the new development.

The railway, brutally cutting through the valley on a talus with lots of residual space, becomes a green, accessible landscape element; with a mixture of housing, retail and public functions.

And thirdly, the Woluwe Avenue becomes a parkway with a tram. The avenue carries a mixture of centralities: ranging from local, to regional and even to international ambitions. These three figures come together in a bottleneck in the valley north of Brussels, where their accumulation of social, ecological, residential and public ambitions creates a new centrality. The three distinct linear figures are related by introducing new open space figures in between the strips. One such an intermediate figure is a new forest, set within a regional series of valley forests. This new forest will be inhabited. By designing a grid of trees of which the species and densities vary, different living conditions are developed. The sequences in the forest are reinforced by the introduction of a new water system. A sequence of storage canals meant to slows down the water at peak rainfall and to counter flooding adds another element to distinguish the different conditions in the forest.

Between Vilvoorde, Machelen and the inhabited forest; the Woluwe parkway enlarges into a central park with public facilities. An extension of this parkway runs diagonal through the forest, injecting public transport and facilities into the area.

## ANALYSIS

Landscape Structure

Missing ecological Green

Forests of the Valley

Interrupted Green Archipelago

Missing ecological Green

Cities of the Valley

Built Structure

Public Transport

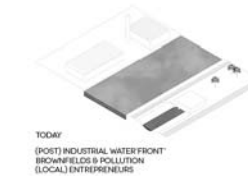
Drosscape Valley

Industrialized Valley

Offices, Business Parks

Urban Sprawl

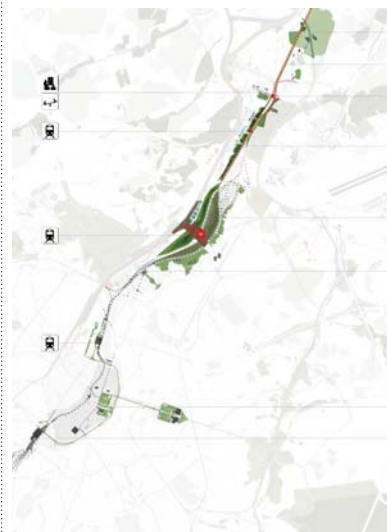
## STRATEGY



## CANAL - ZENE



## RAILWAY TALUS



## WOLUWE(LAAN) - PARKWAY





Master Plan



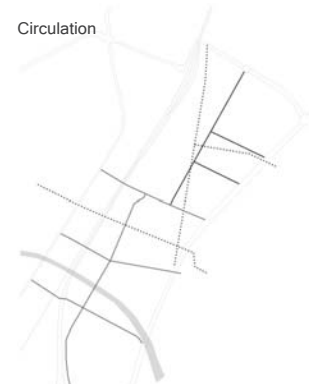
Mineral parkway in the city centre



Reclaiming the water front



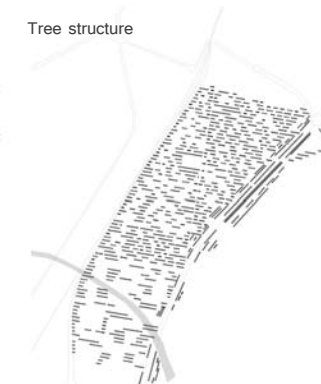
Circulation



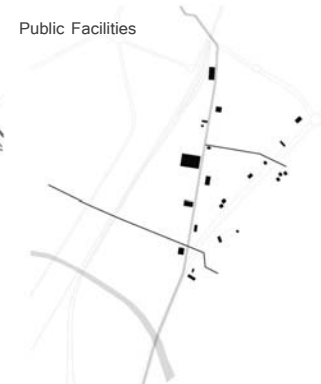
Water managements & treatments



Tree structure



Public Facilities



(Post)-Industrial heritage  
as public space



'Central park' way





# ENTANGLED LANDSCAPE

Anne-Michèle Zeevaert, Brook Abebe,  
Marjolein Lyssens, Caterina Rosso

We structure the entangled, existing landscape by means of a green figure that installs a dialogue between the city of Brussels and its surroundings.

On a regional scale the green structure of Brussels is dominated by the landscape figure of the Zonien forest. The forest is a centrality in itself in close relation to the city centre. The tissue surrounding the forest is defined by sprawled suburban living, based on accessibility by car. It's a landscape figure that doesn't create urbanity and even opposes it in a way. With the insertion of a new landscape figure in the north we introduce an open space that can act as a counterpart of the southern forest. The aim is to integrate the quality of this landscape as a generator of urbanity, rather than opposing it.

The green figure is composed of 2 longitudinal elements with a different identity, based on reinforcing existing landscapes aspects. The new figures complete and relate to the existing natural entities, such as the royal park, the natural reserve bordering Schaarbeek and Haren, Moeraske and the linear system of forests West of Vilvoorde : Floor-dambos, Hellebos, Snijselsbos.

Along the canal, the Schaarbeeklei is the backbone of the inserted landscape figure, that penetrates the industrial landscape reframing the area and enabling mixed development in the future. The drosscape of the abandoned railway lines of the transformation station of Schaarbeek is thereby transformed into a natural entity. The second figure along the Woluwelaan reintroduces the Woluwe within the landscape. Throughout the different green sequences, the water is given space again and is being purified in a natural way. Based on a cut and fill process we install patches of new development.

The two landscapes become a complex combination of local, regional and national destinations. Therefore we maximise the accessibility by public transport by taking out the car as much as possible. Given its strategic location within the international mobility network -new HST station, airport- this interconnection goes beyond the scale of the city of Brussels.

As a whole, these figures operate as a mediator between the local, regional and international level, in which they allow new development in close relation to the city, while they become an added value for the surrounding neighbourhoods.

## ANALYSIS

Green:  
An alternative Centrality

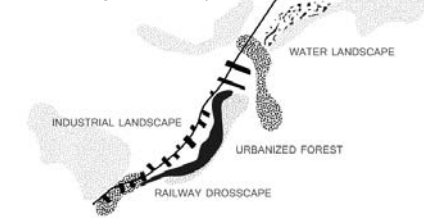


Tissue:  
An interconnected Network

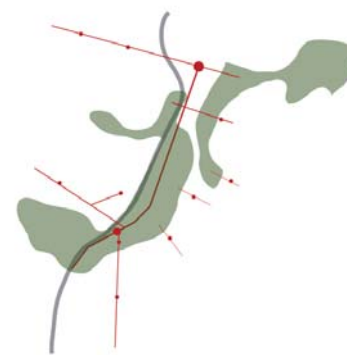


## STRATEGY

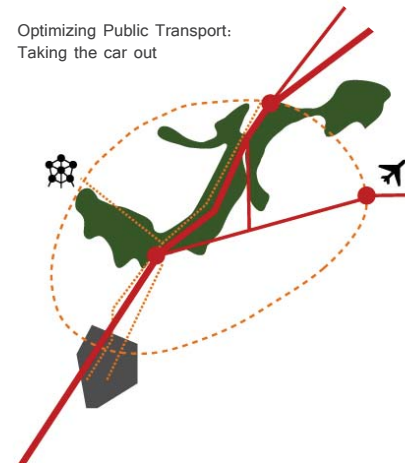
Reinforcing the landscape



Inserting local interconnections



Optimizing Public Transport:  
Taking the car out



Green of different identities



Complementary Network



Compact Densification

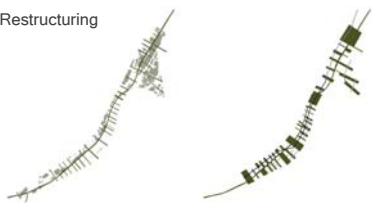




Genral Plan 1



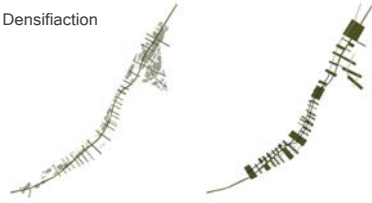
Restructuring



Renaturalization



Densification



Genral Plan 2



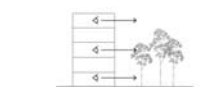
Talus



Ground Cover



Afforestation





# THE INHABITED VALLEY

Luca Filippi

## From industrial valley to inhabited valley: a shift of paradigm

We use an industrial fragment between Vilvoorde and Machelen as a test or experiment to interpret the valley, and its alluvial plain in particular, as an ecological and economical resource. We show the obsolescence of the economic model that has deeply altered the ecology of the valley and its potentialities to become an important artificial ecology that works on different scale levels.

## A new centrality in Brussels North: strategies and programs

As the Vilvoorde-Machelen industrial fragment is in a strategic position: at the confluence of the Senne and the Woulwe, its major tributary, this new ecological identity can be installed after its glorious industrial past. We propose centralities in the valley that provide facilities at both the local and metropolitan scale and that at the same time organize different ways of living along the water.

In our analysis we recognize 6 figures in the site that can carry different programs and strategies:

-Between the Canal and the Senne: today a mostly green space with sprawled ruins of old industrial buildings. It can become a green public space, a place of leisure that at the same time carries a slow mobility connection between Brussels North and Vilvoorde

-Between the Senne and the Schaarbeeklei: today a highly polluted industrial patch. It has, however, the potential to become an important ecological area, as it offers the possibility to open the mainly covered Senne. We imagine a residential area in a park, where we experiment with new living conditions related to the water structures.

-Between the Schaarbeeklei and the railway: today dominated by two large-scale elements: the fly-over of the motorway and the empty building of Renault. We propose to keep the 2 km long building of the Renault factory and transform it into a research centre by carving green patios inside the huge volume

-Between the railway and the Vondelgracht creek: This zone is a green patch that we reinforce as a an element in the water management of the highly impermeable site next to it

-The Woluwelaan: Along the Woluwe avenue we reinforce the existing programs by introducing a business district along the avenue as a parkway and connected to Brussels by a new tramway

-An east-west figure that merges the 5 north south linear figures thus creating one strong central figure. It will be the axis where equipments are concentrated: among others a school campus, the new Vivoorde hospital, a park along the viaduct and a three modal station (water, tram, railway).

# RENAULTPOLIS, WALKABLE CITY

Marine Declève

Our project fits into the perspective of a metropolitan development, structured by the valleys of the Dender, the Dijle and the Zenne. Each valley is characterized by a special relationship between river and canal and by a specific tension between industrial and natural landscapes. The Dender is channelled along its entire length and passes through mainly agricultural landscapes. The Dijle is slightly channelled and its landscape is derived from the ancient carboniferous forest. The Zenne shapes an interconnected hydraulic system with the Brussels-Charleroi and Brussels-Willebroeck waterways, and its landscapes are urban and industrial with only some residual agricultural patches.

The territory of Vilvoorde and the Zenne valley is structured by four SW-NE linear developments:

- The system Zenne - waterway
  - The structure shaped by Schaarbeeklei, the Renault factory and the railway lines 25 and 26.
  - The Woluwelaan and the river that gives it its name.
  - Between the Woluwe and the railway, a fabric with wide meshes with wetlands and industrial lands, that we call "the chambers".
- Our strategy is to magnify the characteristics of each of these territorial structures, organizing the intervention following four thematic axes:
- 1.Living by the water between the Zenne and the canal.
  - 2.Recycling Schaarbeeklei and creating a new railway station and a secondary city centre in the Renault factory.
  - 3.Landscaping the "chambers" between the railway and the Woluwelaan (more residential in the north, more industrial in the south).
  - 4.Developing the Woluwelaan as a metropolitan road with an autonomous road landscape, to which the new urban development in the "chambers" would evolve.

The project (the zoom) is focused on recycling the Schaarbeeklei:

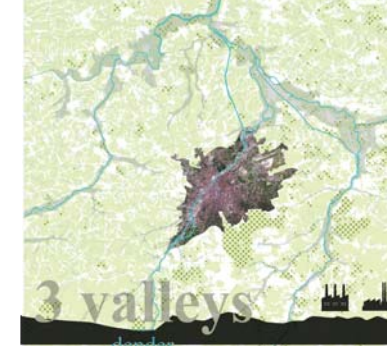
-Reinstalling a metropolitan tramline, starting from the Portaels square and following the Zenne and the canal until Hal and Tubize, at the SW extremity of the metropolitan area.

-Creating a city cluster of educational, cultural and commercial services in the Renault factories, related to a public space on two levels: the street level with tramway stop and the railway level, 4 meters higher. A car park of 1600 places and a bike station are included into the basement.

-Relocating in the former Renault factory all trade, logistic and big shopping activities, like Uplace, planned on different sites around Renault. The planned commercial programs are replaced by new residential developments.

## ANALYSIS

An heterogeneous landscape

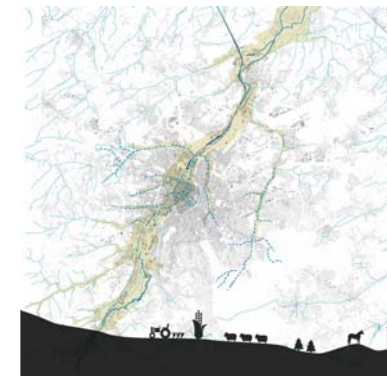


A different kind of metropolis



The Brussels region consists of three valleys: The Senne, Dijle and Dinder. Brussels is developped in the Zenne valley. Compared to the high environmental qualities of the Dijle and the Dinder valleys, the ecological features of the densely inhabited valley of the Senne have been dramatically altered by an industrialization process and massive urbanization.

Water Structure



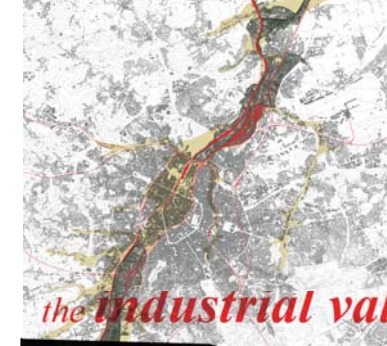
Alluvial plain & Green Structure



Interpretation of Ferraris map



Industrial valley as a linear space



## The industrial valley of the Senne and Brussels North: the genealogy of a topography of fragmentation.

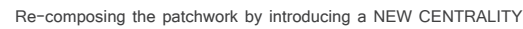
19 th century plans for Brussels (Plan Vanderstraeten 1840, Plan Besme 1865), inspired by a radio concentric model of the city, deal with the issue of linking the lower parts of the inhabited valley with the plateau. Since the 20th century a new concept of a linear industrial city replaces the radio concentric model (the first diagrams of 1930 by Victor Bourgeois and then the idea of the ABC Metropolis). As a result one of the largest industrial sites of the country was created along the plain of the Senne. However the combination of the radio concentric and linear model results in an incredible fragmentation of Brussels North. By comparing the pre-industrial condition of the settlements, as they appear on the Ferraris Map, with the actual configuration the rationality of this archipelago related to the natural/artificial topographies of the valley are revealed.

issues and potentialities

*an artificial landscape in between the canal and the railway*



River re-naturalization



Mobility  CAR & TRUCKS ROADS Green & Blue armature Urban Fabric New Development





IN PROGRESS





The Department of Architecture, Urbanism and Planning offers two post-graduate programs in human settlements and urbanism: The Master of Human Settlements (MaHS) is a 2-semester degree which addresses rapid urbanization in the developing world and contemporary urban transformation within the scope of sustainable development. The internationally oriented Master of Urbanism and Strategic Planning (MaUSP) is a 4-semester degree which addresses the critical understanding of contemporary conditions of cities and urban regions. The MaUSP programme is part of the European Masters in Urbanism (EMU) which is a high-quality, design oriented collaborative program with partner universities UPC Barcelona TU Delft and IUAV Venice. The core of all of the programs is the design studio complemented by compulsory and elective courses.



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KU LEUVEN | MaHS-MaUSP-EMU 2013-2014

URBANISM STUDIO Fall 2013

Program Director: Bruno De Meulder | Studio Instructors: Erik Van Daele, Ivan Llach

